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Docket 74892XMSS
Customer No. 01333

#27 2720
Pat 10-0-01
AT-2612

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Jeffrey A. Small

PRINTER PARAMETER
COMPENSATION BY A HOST
CAMERA

Serial No. 08/833,106

Filed 14 June 2000

Commissioner for Patents
Box AF
Washington, D.C. 20231

Group Art Unit: 2612

Examiner: Mitchell White

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Before the Board of Patent Appeals and Interferences, Washington, D.C. 20231.

Jeannette Kramarz
Jeannette Kramarz

October 2, 2001
Date

Sir:

APPEAL BRIEF TRANSMITTAL

Enclosed herewith in triplicate is Appellants' Appeal Brief for the above-identified application.

The Commissioner is hereby authorized to charge the Appeal Brief filing fee to Eastman Kodak Company Deposit Account 05-0225. A duplicate copy of this letter is enclosed.

Respectfully submitted,

Milton S. Sales/jrk
Telephone: (716) 588-2718
Facsimile: (716) 477-1148
Enclosures

Milton S. Sales
Attorney for Appellants
Registration No. 24,516

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Jeanette Kramarz
Jeanette Kramarz

October 2, 2001
Date

Sir:

APPEAL BRIEF PURSUANT TO 37 C.F.R. 1.192

Attorney for Appellants
Milton S. Sales
Registration No. 24,516

EASTMAN KODAK COMPANY
Patent Legal Staff
343 State Street
Rochester, New York 14650

MSS/jrk
Enclosures
Telephone: (716) 588-2718
Facsimile: (716) 477-1148

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APPELLANT'S BRIEF ON APPEAL

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 2-4, 11-13 and 25 which were contained in the Office Action mailed July 27, 2001.

A timely Notice of Appeal was filed on September 18, 2001.

Real Party In Interest

As indicated above in the caption of the Brief, the Eastman Kodak Company is the real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Claims 2-4, 11-13 and 25 are pending in the application.

Appendix I provides a clean, double spaced copy of the claims on appeal.

Status Of Amendments

No amendments were filed subsequent to the Final Rejection.

Summary Of The Invention

The present invention is directed to a digital camera that can be connected to an independent color printer. Conventional digital cameras capture images, process the captured images, and store the processed images in a nonvolatile memory. The processing step is conventional in the art, and may include a color space transformation or color filter interpolation to compensate for the color characteristics of the digital camera. This entire operation is independent of the characteristics of the printer, since the characteristics of the printer would have no effect on the transformation or the interpolation. Such digital cameras can be connected to a separate printer having predetermined process colors and printing

process characteristics. Parameters representing these printer characteristics are stored in the printers, generally by the printer manufacturer.

According to a feature of the present invention, these printer parameters are uploaded from the printer to the camera via a camera/printer interface, and the same interface is later used to download images from the camera to the printer. Once the printer parameters have been uploaded to the camera, the camera processes the stored image according to the parameters. This processing includes a second color space transformation to compensate for the characteristics of the printer.

Thus, there are two separate color space transformation steps claimed, both provided by the digital camera, not the printer. Connecting different printers to the camera of the present invention will result in different parameters being used to create different processed images.

Issues For Review By The Board

The following issue is presented for review by the Board of Patent Appeals and Interferences: Are Claims 2-4, 11-13, and 25 unpatentable over Koike et al. 5,237,401 in view of Ohta 6,108,008.

Grouping Of Claims

For purposes of this appeal only, the claims may be considered to stand or fall together.

Arguments

The use of two separate color space transformation steps within a digital camera or other image reading device, one prior to storage (to compensate for the camera characteristics) and one after storage, but prior to printing (to compensate for the printer characteristics), is not described or implied by any of the references, taken singularly or in combination.

For example, Koike et al. describe an image reader in a color facsimile or color copying machine with a single color correction operation (25 in FIG 6 or 9 in FIG 5). Koike et al. disclose a color image reading apparatus (column 1 lines

6-7). Such facsimile and color copying machines include both image reading (document scanning) and printing in the same unit. As such, a single color correction step is used to compensate for characteristics of both the scanning step and the printing step. This is the case with Koike et al., as described in col. 2, lines 10-22, noted by the Examiner. This section suggests that a single color correcting operation 25 (FIG 6) in a facsimile or copying machine can compensate for both the characteristics of the image reading apparatus (e.g. the light source, color separating filter, CCD sensor spectral sensitivity) and the color reproducing characteristic of a printer. Clearly, this is possible only when the color reproducing characteristic of the printer is known when the image is being scanned and color corrected. Obviously, the single color correction operation (25 in FIG 6, or 9 in FIG 5) could not possibly correct for two different color reproducing characteristics of two different printers at the same time.

The Examiner admits that Koike et al. does not disclose "a printer interface for receiving process color and printing process parameters from different printers having different predetermined process." The Office Action goes on to note that Ohta discloses a printer condition setting means 9 used to set various output conditions of the connected printer. The rejection is based on the Examiner's belief that "it would have been obvious to modify the Koike et al. image reading apparatus to printer interface for receiving process color and printing process parameters from different printers...."

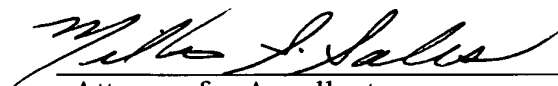
However, Ohta is merely another color management patent that describes processing on a host personal computer (not, in the context of the present application, the equivalent of a digital camera) to compensate for a particular printer 11. In Ohta, the host personal computer connects to printer 11 via a first interface (between color space conversion means 2 and printer 11). Information is received from a "printer condition setting means" 9, which is not well described, but which is clearly not part of printer 11. Thus information is received by the camera from printer condition setting means 9 via a totally

separate and different interface from the camera/printer interface that is used to download images from the camera to the printer.

Conclusion

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 2-4, 11-13 and 25.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Milton S. Sales", written over a horizontal line.

Attorney for Appellants
Registration No. 24,516

Milton S. Sales/jrk
Telephone: (716) 588-2718
Facsimile: (716) 477-1148
Enclosures

Appendix I - Claims on Appeal

2. A digital camera as set forth in Claim 4 further comprising a parameter memory into which printer process parameters can be stored.

3. A digital camera as set forth in Claim 4 further adapted to effect image sensor tone scale compensation.

4. A digital camera for use with separate color printers each of which having different predetermined process color and printing process parameters, a camera interface, a processor, a program memory, and a marking apparatus under the control of the processor; said camera comprising:

an imager to capture images;

a non-volatile memory;

a printer interface for both receiving process color and printing process parameters from the camera interface of a one of the printers in response to connection of the one of the printers to the camera, and for also transmitting processed images to the one of the printers, wherein the camera receives color and printing process parameters from the one of the printers and stores the parameters in the non-volatile memory; and

an image processor adapted to sequentially:

- (a) initially process the captured image, by (i) a first color space transformation and (ii) compression, to thereby produce processed image data,
- (b) then store the processed image data in said non-volatile memory,

(c) further process the stored initially processed image data to effect decompression and then, using the stored parameters, to effect compensation for printer characteristics responsive to received parameters and including a second color space transformation into color planes that coincide with the printer process colors of the one of the printers, and

(d) finally supply the color planes that coincide with the printer process colors to the one of the printers using the printer interface.

11. A process for digital cameras used with separate color printers each having different predetermined process colors and printing process characteristics, said process including the sequential steps of:

capturing an image on an imager;

processing the captured image by (i) color filter interpolation, (ii) a first color space transformation, and (iii) compression to produce first processed image data;

storing the first processed image data;

connecting a one of the printers to the camera via a printer interface;

receiving process color and printing process parameters from the one of the printers via the printer interface;

further processing the stored first processed image data to effect decompression and compensation for the characteristics of the one of the printers responsive to received parameters to produce second processed image data, wherein said compensation includes a second color space transformation; and

transmitting second processed image data to the one of the printers using said printer interface.

12. A process as set forth in Claim 11 further comprising storing printer process parameters in a parameter memory.

13. A process as set forth in Claim 11 further comprising effecting one or more of the following: image sensor tone scale compensation, re-sizing, and spatial filtering.

25. A process for digital cameras used with at least two separate color printers each having different predetermined process colors and printing process characteristics, said process including the sequential steps of:

capturing an image on an imager;

processing the captured image by (i) color filter interpolation, (ii)

compression to produce first processed image data;

storing the first processed image data;

connecting a first printer to the camera via a printer interface;

receiving first process color and printing process parameters from the first printer via the printer interface;

further processing the stored first processed image data to effect decompression and compensation for the characteristics of the first printer responsive to received parameters to produce second processed image data;

transmitting said second processed image data to the first printer using said printer interface;

connecting a second printer to the camera via the printer interface;
receiving second process color and printing process parameters, different from said first parameters from the second printer, via the printer interface;
further processing the stored first processed image data to effect decompression and compensation for the characteristics of the second printer responsive to received parameters to produce third processed image data, different from said second processed image data; and
transmitting said third processed image data to the second printer using said printer interface.